

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1 to 46 (*cancelled*)

47. (*currently amended*) A process for separating materials, comprising the steps of:
introducing a plurality of substances to at least one adsorbent material;
adsorbing at least one substance of said plurality of substances;
electrically charging the adsorbent material so as to generate a traveling electric field to desorb said at least one adsorbed substance; and
electrokinetically removing said at least one adsorbed substance from the at least one adsorbent material with said traveling electric field.
48. (*original*) The process of claim 47, further comprising the step of filtering said plurality of substances.
49. (*original*) The process of claim 47, further comprising the step of exposing said plurality of substances to one of an electro-positive or an electro-negative material.
50. (*original*) The process of claim 47, further comprising the step of exposing said plurality of substances to a catalyst material.
51. (*original*) The process of claim 47, further comprising the step of collecting said at least one removed substance.
52. (*original*) The process of claim 47, wherein said electric field is one of a traveling electric field, an electric field flux, a voltage spike, a polyphase electric potential, an electric field gradient and combination thereof.

53. *(original)* The process of claim 47, further comprising at least one of the steps of allowing any non-adsorbed substances of said plurality of substances to be removed from the adsorption unit, collecting any non-adsorbed substances of said plurality of substances, recycling any non-adsorbed substances of said plurality of substances and subjecting any non-adsorbed substances of said plurality of substances to at least one additional purification step
54. *(original)* The process of claim 47, further comprising the step of polarizing at least one of said substances of said combination of substances.
55. *(original)* The process of claim 47, wherein said plurality of substances is at least one of a gas, a liquid and mixtures thereof.
56. *(cancelled)*
57. *(original)* The process of claim 47, wherein said process is exothermic.
58. *(cancelled)*
59. *(original)* The process of claim 47, wherein at least one of said plurality of substances is oxygen, air, water, p-xylene, o-xylene, a hydrocarbon, an aromatic hydrocarbon, a heavy metal, a virus, a bacterium, a pathogen, a volatile organic compound, a salt, a vapor, a gas, a liquid and a particle.
60. *(currently amended)* A process for thermal management, comprising the steps of: exposing a working fluid to at least one adsorbent unit; electrically charging said adsorbent material so as to generate a traveling electric field; adsorbing said working fluid within said adsorbent layer; condensing said adsorbed working fluid from said adsorbent layer; electrokinetically removing said adsorbed working fluid from said adsorbent layer with said traveling electric field; and re-exposing said working fluid to said adsorbent unit.

61. *(original)* The process of claim 60, wherein said adsorbent unit is a closed adsorbent unit.
62. *(original)* The process of claim 60, further comprising the step of collecting said removed working fluid from said adsorbent layer.
63. *(original)* The process of claim 60, wherein said working fluid is at least one of a refrigerant, of a halocarbon compound, a cyclic-organic compound, an azeotropic compound, an aliphatic hydrocarbon compound, an oxygen-containing compound, a nitrogen-containing compound, a sulfur-containing compound, an inorganic compound, an unsaturated organic compound, a gaseous compound and combinations thereof
64. *(original)* The process of claim 60, wherein said step of exposing said working fluid to said adsorbent unit is at least one of pumping a gas feed stream, pumping a liquid feed stream, passing a gas feed stream, passing a liquid feed stream, opening a gas feed stream, opening a liquid feed stream and combinations thereof.